

Malignant Transformation In Mature Cystic Teratoma Of The Ovary: A Case Report

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Abstract

The incidence of malignant transformation in mature cystic teratoma of the ovary is less than 2% as reported in gynaecological and pathological literature. The most common malignancy is squamous cell carcinoma, which consists of about 75% of malignant transformations. A case of malignant transformation in mature cystic teratoma of the ovary reported here. The patient was 52 years old women with the complaints of per vaginal bleeding and pain in lower abdomen. The initial investigation by ultrasound showed bilateral ovarian complex mass, which arose the suspicion of malignancy. She underwent laparotomy and total abdominal hysterectomy with excision of both adnexal mass. Histopathology was compatible with squamous cell carcinoma arising in a mature cystic teratoma in one mature cystic teratoma.

Keywords: Ovary-Mature cystic, teratoma, Malignant transformation.

Introduction

The term teratoma is derived from the Greek root "teratos" which means monster¹. Mature cystic teratoma (MCT), composed of well-differentiated tissues derived from the three germ cell layers (ectoderm, mesoderm, and endoderm), is the most common tumor of the ovary and accounts for 10-20% of all ovarian tumors in women of reproductive age¹. Malignant transformation in an MCT of the ovary is rare, with an incidence rate of less than 3%^{1,2}. The most common malignancy is squamous cell carcinoma (SCC), which represents about 75% of malignant transformations, followed by adenocarcinoma and melanoma³. The frequency of this type of malignant transformation is age related and is the most common in the fifth and sixth decades of life⁴.

Malignant transformation occurring in mature cystic teratoma of the ovary is rarely diagnosed pre-operatively due to the rarity of this tumor and its similarity to mature cystic teratoma^{2,8,9}. Hence, malignant transformation is currently diagnosed only by post-operative pathological examination in most cases. In the present report, we describe a case of SCC arising in one MCT.

Case Report

A 52 year old woman hailing from Dhaka district, house wife by profession was admitted with the complaints of lower abdominal pain and lump for 8 months and slight per vaginal bleeding for last two weeks. Per abdominal examination reveals a mass felt in pelvic region with irregular margin, size about

20 weeks, surface nodular and slightly mobile. On per vaginal examination the vulva and vagina were normal, cervix was healthy and size of the uterus cannot be recognized but a mass correlates with per abdominal findings.

The patient was obese. Haematological tests revealed mild anaemia, raised ESR, but other hematological and biochemical tests were normal. USG showed bilateral ovarian complex mass lesion suggestive of carcinoma ovary. Mild ascites in lower abdomen and pelvic cavity and excessive gas shadow in upper abdomen were found. USG guided FNAC reports Benign cystic lesion, correlates with Dermoid cyst. Ascitic fluid was drawn and sent for cytological examination and reveal Suppurative inflammation, No malignant cell is seen. Gram stain was done and found a few Gm (+ ve) cocci, increase number of pus cells and a small number of epithelial cells.

Operative findings: Moderate ascites, large sized multiple tumor nodules adherent to bowel, omentum and urinary bladder. The tumor was partly solid and partly cystic. For severe adhesion with bladder, cervix cannot be fully removed.

Gross inspection showed a totally resected uterus with two separated adnexal mass. The one mass was 9 cm in diameter with smooth rounded surface. On sectioning cystic space is found containing sebum, hair and bony tissue. The wall measures 0.5 cm.

The other adnexal mass measures 14.4x7x5.5 cm.

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On sectioning two fused mass were found. The one was 7 cm in diameter with rough wall, 1.8 cm in thickness and the cavity is filled with necrotic material. The other cyst was 8 cm in diameter with smooth surface. On sectioning sebum and hair was found. Histopathologic examination reveal features of MCT of both ovaries with malignant transformation in one of them (suggestive of poorly differentiated SCC).

Discussion

SCC arising from an MCT is a rare pathologic event and in most instances not diagnosed preoperatively. There are no particular signs or symptoms which are characteristics of malignancy arising in a dermoid cyst. The patient in this report suffered from lower abdominal pain for 8 months. She sought medical advice only after worsening of the pain and having extra complaints such as low grade fever and per vaginal bleeding. The common symptom is abdominal pain followed by abdominal mass, but the patients may be asymptomatic or have symptoms of abdominal distension or bloated abdomen, as those caused by benign cysts⁷. In some other cases, various symptoms due to invasion of nearby organs are the presenting complaints, such as gastrointestinal symptoms of constipation or diarrhea, rectal bleeding, or urinary frequency¹⁰. Other nonspecific signs of wasting disease such as weight loss or cachexia may be found in advanced cases.

Preoperative diagnosis of an MCT of the ovary is relatively easy due to the radiologic detection of bony tissues including teeth, bones and cartilages. However, preoperative diagnosis of malignant transformation is very difficult clinically, because this tumor cannot be readily differentiated from an uncomplicated MCT or other ovarian tumors¹². Since the occurrence of SCC in MCT is rare, pre-operative diagnosis is a difficult task and a high index of suspicion will help make a pre-operative diagnosis^{5,20}.

Combination of patients age (above 40 years) with serum SCC antigen level (>2.5 ng/ml) has been considered a suitable marker for MT in MCT². SCC antigen, either alone or in combination with other markers like macrophage-colony stimulating factor (M-CSF) and carcino-embryonic antigen (CEA), may be a useful marker to detect this disease pre-operatively^{5,8,9,21}. However, the serum SCC antigen level depends on the tumor volume, so it may not be suitable for early detection of small tumors^{22,23}. An elevated pre-operative serum level of SCC antigen may indicate the need for a rapid pathologic examination of the tumor to look for malignant elements and may influence the surgical regimen.

SCC arising in an MCT has historically been observed in relatively older patients particularly after menopause; although, it has been sometimes reported in young patients around 30 years^{13,14}. The patients age in our case was 53 years, which is consistent with the usual age range of this disease. A lot of studies demonstrated a role for patients age in differential diagnosis as it is prudent to maintain a higher suspicion of malignancy in MCTs occurring in patients over the age of 45^{11,15,16}. So this it is considered helpful for prevention and early detection of the malignant transformation to have regular ovary examination through pelvic ultrasonogram in middle age¹⁸.

Tumor size has also been noted to predict malignancy. Although MCT presents in a wide range of sizes, larger tumor correlate with an increased risk of malignant transformation. In our case, the tumor diameter was around 14 cm, which is larger than a typical benign cyst. Kikkawa et al. reported that a tumor diameter of larger than 9.9 cm was 86% sensitive for malignancy in their series¹⁶. In general, it is recommended that a diameter equal or greater than 10 cm or a tumor demonstrating rapid growth should prompt suspicion¹⁹.

Historically, SCC arising in MCT of the ovary has been associated with a very poor prognosis⁶. Age, tumor size, clinical stage, histologic differentiation, capsular invasion and the presence of invasion can provide valuable information for predicting the survival of patients with SCC arising from MCT^{8,17,20}. SCC of the ovary spreads transmurally with extensive local invasion, which differs from common ovarian tumors. In addition, better prognosis has been reported when the malignant elements an SCC compared with adenocarcinoma or sarcoma¹².

Overall 5-year survival rate of 52% has been reported by Hirakawa et al¹⁷. in their series of 28 patients. The main therapeutic approach to an ovarian MCT with malignant transformation has been surgical^{24,25}. Multimodal therapy, including aggressive cytoreduction followed by cisplatinum-based chemotherapy with or without sequential radiotherapy, has been recommended. Results of these treatment regimens were variable and have not been systemically evaluated. Therefore, the optimal adjuvant therapy for SCC arising from an MCT has not been yet established^{3,10,25}.

In conclusion, clinicians should keep this rare type of tumor in mind when faced with a dermoid cyst, especially in older patients or in larger than usual cysts. Lastly, although many authors have

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documented the use of a combination of chemotherapy and / or radiation, one must point out the different outcomes obtained. Therefore, the optimal treatment of this cancer should be individualized based upon clinical findings of the patients and experience of the care providers.

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